



DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[CDC-2016-0001; Docket Number NIOSH-260-A]

Final Current Intelligence Bulletin 70: Health Effects of Occupational Exposure to Silver Nanomaterials

AGENCY: National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS) .

ACTION: Notice of availability.

SUMMARY: NIOSH announces the availability of the final Current Intelligence Bulletin (CIB) 70: Health Effects of Occupational Exposure to Silver Nanomaterials.

DATES: The final document was published on May 26, 2021 on the CDC Web site.

ADDRESSES: The document may be obtained at the following link: <https://www.cdc.gov/niosh/docs/2021-112/>.

FOR FURTHER INFORMATION CONTACT: Jay Vietas,
(jvietas@cdc.gov), National Institute for Occupational
Safety and Health, Centers for Disease Control and
Prevention, Mailstop C-14, 1090 Tusculum Avenue, phone
(513) 533-8150 (not a toll free number).

SUPPLEMENTARY INFORMATION: NIOSH first published a request
on December 19, 2012, for information on occupational
exposure to silver nanomaterials, possible health effects
in workers exposed to silver nanomaterials, toxicology
studies of silver nanomaterials in animals and cellular
systems, and information on exposure measurement methods,
control measures, and other data in the **Federal Register**
[77 FR 75169]. In January 2016, NIOSH released a draft of
the CIB for external review and published notices of a
public meeting and comment period on January 21, 2016 in
the **Federal Register** [81 FR 342], and February 10, 2016 [81
FR 7124]. A public meeting was held on March 23, 2016, and
members of the public, stakeholders, and scientific peer
reviewers were given the opportunity to provide comments by
April 22, 2016. In response to those comments, NIOSH
performed a second systematic review of the scientific
literature through January 2017 to include additional
publications on the occupational exposure to silver
nanomaterials and possible health effects in humans and
toxicology studies of silver nanomaterials in animals and

cellular systems. Based on review of the scientific literature, NIOSH revised the draft CIB and developed a recommended exposure limit (REL) for silver nanomaterials. The revised draft CIB was released for public review with a **Federal Register** notice on September 18, 2018 [83 FR 47174]. The notice included a request for comments from peer reviewers and the public and provided information regarding a second public meeting that was held on October 30, 2018. The purpose of the public review was to obtain comments on whether the NIOSH draft document (1) adequately and clearly described the scientific literature on the potential adverse health effects of silver nanomaterials, and (2) demonstrated that the NIOSH recommendations on occupational exposure to silver nanomaterials are consistent with current scientific knowledge. Public, stakeholder, and scientific peer reviewers were given the opportunity to submit comments to the docket by November 30, 2018.

NIOSH carefully considered the comments received on the revised draft document. Reviewers provided comments on the NIOSH assessment of the potential adverse health effects of occupational exposure to silver nanomaterials, on the data and methods NIOSH used to develop a recommended exposure limit for silver nanomaterials, on the NIOSH recommended methods for assessing and controlling exposures to silver

nanomaterials in the workplace, and on the identified data gaps and future research needs. In developing the final document, NIOSH performed an additional systematic literature search in April 2019 to determine if any subsequent studies in animals or humans had been published that pertained to the quantitative risk assessment and the derivation of a REL for silver nanomaterials. No additional studies were found that impacted those topics. NIOSH responded to the public, stakeholder, and peer review comments received and developed the final document consistent with the responses to comments. These comments and the NIOSH responses are available at:

<https://www.regulations.gov/search/docket?filter=cdc-2016-0001>.

The final CIB provides a comprehensive scientific review of the scientific literature pertaining to occupational exposure to silver nanomaterials. The literature includes studies of exposures to silver nanomaterials in the workplace, toxicological effects of exposure to silver nanomaterials in experimental animal and cellular systems, and effects of particle size and other properties on the toxicological effects of silver. NIOSH assessed the potential health risks of occupational exposure to silver nanomaterials by evaluating the scientific literature. Studies in animals have shown adverse lung and liver

effects associated with exposure to silver nanoparticles. Based on an assessment of those data, NIOSH developed a REL for silver nanomaterials. This new REL applies to processes that produce or use silver nanomaterials in the workplace. In addition, NIOSH continues to recommend its existing REL for total silver (metal dust and soluble compounds, as Ag) [www.cdc.gov/niosh/npg/npgd0557.html]. In the CIB, NIOSH provides recommendations on the measurement and control of occupational exposures to silver and silver nanomaterials.

NIOSH further recommends the use of workplace exposure assessments, engineering controls, safe work procedures, training, and education, and established medical surveillance approaches to prevent potential adverse health effects from occupational exposure to silver nanomaterials. NIOSH proposes research needed to fill remaining data gaps on the potential adverse health effects of occupational exposure to silver nanomaterials.

John J. Howard,

Director, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

[FR Doc. 2021-11626 Filed: 6/2/2021 8:45 am; Publication Date: 6/3/2021]